ROGER D. KAMM

Curriculum Vitae

School Address

Massachusetts Institute of Technology

REDACTED

Permanent Address

REDACTED

EDUCATION: MASSACHUSETTS INSTITUTE OF TECHNOLOGY, Cambridge, Ma.

Ph.D. in Mechanical Engineering, May 1977
Thesis: "A Study of External Pneumatic Compression for the Prevention of Deep Venous Thrombosis"
Advisor: Professor A. H. Shapiro
NIGMS Fellow, Sigma Xi

S.M. in Mechanical Engineering, August 1973
Thesis: "An Acoustic Amplifier for the Detection of Atmospheric Pollutants"
Advisor: Professor C. F. Dewey, Jr.
National Science Foundation Traineeship

NORTHWESTERN UNIVERSITY, Evanston, Illinois

B.S. in Mechanical Engineering, June 1972
Tau Beta Pi, Pi Tau Sigma (Pres.), ASME (Pres.), Phi Eta Sigma
Harry Coulby Scholarship, 1968-1972

EXPERIENCE

July 1981 - present: Associate Professor of Mechanical Engineering at M.I.T. Research interests in biomedical fluid mechanics, fluid mechanics and mass transport. Teaching responsibilities in fluid mechanics, thermal sciences, and heat transfer.

July 1978 - July 1981: Assistant Professor of Mechanical Engineering at MIT.

May 1977 to July 1978: Lecturer and Research Associate in the Department of Mechanical Engineering at M.I.T.

January 1977 - May 1977: Instructor, teaching an undergraduate course in fluid mechanics at M.I.T.

June 1972 - May 1977: Research Assistant in M.I.T. Fluid Mechanics Laboratory.

HONORS

Sigma Xi, Tau Beta Pi, Pi Tau Sigma, American Men and Women of Sicence, Who's Who in the East.

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Publications of ROGER D. KAMM

1. Books

None

2. Papers in Refereed Journals

1. Dewey, C. F., Kamm, R. D., and Hackett, C. E., "An acoustic amplifier for the detection of atmospheric pollutants," Appl. Phys. Lett., 23: 11, 633-635, 1973.

2. Kamm, R. D., "Detection of weakly absorbing gases using a resonant opto-acoustic method," J. Appl. Phys., 47: 8, 3550-3558, 1976.

3. Kamm. R. D., and Shapiro, A. H., "Unsteady flow in a collapsible tube subjected to external pressure or body forces," J. Fluid Mech., 95: 1, 1-78, 1979.

4. Thrisk, R. B., Kamm R. D., and Shapiro, A. H., "Changes in venous blood volume produced by external compression of the lower leg," Medical and Biological Engineering and Computing, Vol. 18, No. 5, pp. 650-656, 1980.

5. Slutsky, A. S., Draxen, J. M., Ingram, R. H. Jr., Kamm, R. D., Shapiro, A. H., Fredberg, J. J., Loring S. H., and Lehr, J. "Effective pulmonary ventilation with small-volume oscillations at high frequency," Science, Vol. 209, pp. 609-610, 1 August 1980.

6. Kececioglu, I., McClurken, M. E., Kamm R. D., and Shapiro, A. H., "Steady supercritical flow in collapsible tubes. Part I: experimental observations," Jounral of Fluid Mechanics, Vol. 109, pp. 367-389, 1981.

7. McClurken, M. E., Kececioglu, I., Kamm R. D., and Shapiro, A. H., "Steady supercritical flow in collapsible tubes. Part II: theoretical studies," Journal of Fluid Mechanics, Vol. 109, pp. 391-415, 1981.

8. Lueptow, R. M., Karlen, J. M., Kamm R. D., and Shapiro, A. H., "Circulatory model studies of external cardiac assist by counter-pulsation," Cardiovascular Research, in press.

9. Lueptow, R. M., Karlen, J. M., Kamm R. D., and Shapiro, A. H., "Study of four modes of counterpulsative external cardiac assist (ECA)," 27th Annual Meeting of the American Society for Artificial Internal Organs, May 6-8, 1981, Anahemi, CA. To appear in the 1981 ASAIO Transactions.

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Publications of ROGER D. KAMM

3. Proceedings of Refereed Conferences

1. Scherer, P. W., Kamm R. D., and Shapiro, A. H., "External pneumatic compression for the prevention of deep venous thrombosis," Proceedings of the San Diego Bio-medical Symposium, Vol. 14, pp. 403-407, 1975.

2. Kamm, R. D., and Shapiro, A. H., "Hemodynamics of intermittent external limb compression," Fed. Proc. 10050, 1977.

3. Kececioglu, I., Kamm, R. D., and Shapiro, A. H., "Structure of shock waves in collapsible tube flow," Proceedings of the 31st Annual Conference on Engineering in Medicine and Biology, 1978.

4. Thirsk, R. B., Kamm, R. D., and Shapiro, A. H., "Venous compliance of calf at negative transmural pressure," Proceedings of the 31st Annual Conference on Engineering in Medicine and Biology, 1978.

5. Kamm, R. D., and Shapiro, A. H., "The unsteady collapse of a compliant tube subjected to uniform external pressure," Proceedings of the 31st Annual Conference on Engineering in Medicine and Biology, 1978.

6. Olson, D. A., Kamm, R. D., and Shapiro, A. H., "Experimental studies of external pneumatic compression methods on a model human leg," Proceedings of the 32nd Annual Conference on Engineering in Medicine and Biology, 1979.

7. Hollars, M. G., Kamm, R. D., and Shapiro, A. H., "Comparison of intermittent external compression methods," Proceedings of 32nd Annual Conference on Engineering in Medicine and Biology, 1979.

8. Venegas, J. G., Kamm, R. D., and Shapiro, A. H., Abstract: "A simple pulmonary model of forced expiration," Proceedings of the 33rd Annual Conference on Engineering in Medicine and Biology, Washington, D. C., 1980.

9. Johnson, M. C., Kamm R. D., and Shapiro, A. H., Abstract: "A model for the flow of aqueous humor from the eye," Proceedings of the 33rd Annual Conference on Engineering in Medicine and Biology, Washington, D. C., 1980.

10. Lueptow, R. M., Karlen, J. M., Kamm R. D., and Shapiro, A. H., Abstract: "Model studies of external cardiac assist by counter-pulsation," Proceedings of the 33rd Annual Conference on Engineering in Medicine and Biology, Washington, D.C., 30 Sept. - 3 Oct. 1980.

11. Kamm, R. D., Joshi, C., Slutsky, A. S., and Drazen, J. M., "Ventilation by high frequency, low volume oscillations," Proceedings of the 33rd Annual Conference on Engineering in Medicine and Biology, Washington, D.C., 1980.

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Publications of REGER D. KAMM

12. Slutsky, A. S., Drazen, J. M., Kamm, R. D., Loring, S. H., Lehr, J., Ingrams, R. H. Jr., and Shapiro, A. H., Abstract: "The effect of lung volume on CO_2 elimination by high frequency ventilation (HFV)," Joint Fall Meeting of the APS, Toronto, Canada, October 12-17, 1980.

13. McClurken, M. E., Kececioglu, I., Jan, D. L., Parton, R. A., Kamm, R. D. and Shapiro, A. H., Abstract: "Supercritical flow in collapsible tubes," 1980 Centennial Winter Annual Meeting of the ASME, Chicago, Illinois, November 16-21, 1980. 1980 Advances in Bioengineering, pp. 293-296.

14. Jan, D. L., Parton, R. A., Kamm R. D., and Shapiro, A. H., Abstract: "Unsteady flow in a partially collapsed compliant tube under axial tension," 1980 Centennial Winter Annual Meeting of the ASME, Chicago, Illinois, November 16-21, 1980. 1980 Advances in Bioengineering, pp. 289-292.

15. Froelich, J., Kamm, R. D., Shapiro, A. H., McKusick, K. A., and Strauss, H. W., Abstract: "Effect of external pneumatic compression on venous volumes of the calf," 28th Annual Meeting of the Society of Nuclear Medicine,

16. Johnson, M. C., Kamm R. D., and Shapiro, A. H., Abstract: " A model for the flow of aqueous Humor through Schlemm's canal," Supplement to Investigative Ophthalmology and Visual Science, Vol. 20, No. 3, p. 28, 1981.

17. Rossing, T. H. Slutsky, A. S., Lehr, J., Ingram, R. H., Kamm, R. D., Shapiro, A. H., and Drazen, J. M., Abstract: "The influence of tidal volume (V_T) on CO_2 output ($\dot{V}_{CO_2}$) during high frequency ventilation (HFV) in dogs," Federation Proceedings, Vol. 40, p. 384, 1981.

18. Kamm, R. D., Joshi, C. H., Minnichelli, M. D., Mahoney, G. T., Shapiro, A. H., Slutsky, A. S. and Drazen, J. M., Abstract: "Experimental Measurements in a univorm tube of the effective diffusivity in oscillatory flow," Federation Proceedings, Vol. 40, p. 1981.

19. Rossing, T. H., Slutsky, A. S., Loring, S. H., Ingram, R. H. Jr., Kamm, R. D., Shapiro, A. H., and Drazen, J. M., Abstract: "Effects of histamine induced bronchoconstriction on gas exchange by high frequency ventilation in dogs," Federation Proceedings, Vol. 40, p. , 1981.

20. Lichter, S., Kamm, R. D., and Shapiro, A. H., "Unstable oscillations at an elastic jump in a compliant tube," to be presented at the 34th Annual Conference on Engineering in Medicine and Biology, to be held in Houston, Texas, 21-25 September 1981.

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21. Battaglioli, J. L., and Kamm. R. D., "The collapse of small vessels in the wall of a spherical cavity," accepted for publication in the Proceedings of the 34th Annual Conference on Engineering in Medicine and Biology, Houston, Texas, 1981.

5. Internal Memoranda and Progress Reports

None

6. Invited Lectures

1. February 1979, " The Hemodynamics of External Pneumatic Compression, "Kendal Corporation, Research Division, Barrington, Illinois.

2. May, 1981, "Mechanisms of Gas Exchange in High Frequency Ventilation," AAMI 16th Annual Meeting, Washington, D. C..

3. June, 1981, "Pressure Cycles for External Pneumatic Compression," Presented at a conference organized at the NIH on the Rheologic Contributions to Thrombosis and Hemostasis, Bethesda, Maryland.

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